Spatial river water quality assessment in Tanjung Malim, Perak (Malaysia) using multivariate statistical analysis

ABSTRACT

In this study, water samples from river in Tanjung Malim were analyzed for demand (BOD), dissolved oxygen (DO), ammoniacal nitrogen (NH 3-N), total dissolved solid (TDS), suspended solid (SS), pH, and heavy metals including Cd, Cu, Pb, Mn, and Fe. The variations in these parameters were evaluated with the chemometric technique. The results from the principal component analysis revealed that variations in heavy metal concentrations were attributed to the automobile industry, and differences in DO, BOD, TSS, TDS, NH 3-N were due to the anthropogenic activities along the river bank. The levels of Cd and Pb recorded in the periods under study were higher than the reference limits. These results indicate pollution of the river water especially in the month of Jan 2018, which implies that both aquatic organisms and humans could be at risk exposure to toxic metals.